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EXAMINER

ABEL JALIL, NEVEEN

ART UNIT

PAPER NUMBER

2165

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/693,163

Applicant(s)

ESCHBACH ET AL.

Examiner

Neveen Abel-Jalil

Art Unit

2165

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### Remarks

1. In response to Applicant's Amendment filed on October 9, 2007, claim 37 is pending in the application.

### *Claim Objections*

2. Claim 37 is objected to because of the following informalities:

Claim 37 recites the limitation "the image contents" in line 13. There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sigurjonsson et al. (U.S. Pub. No. 2002/0107829 A1) in view of Kobus Barnard and David Forsyth. Learning the Semantics of Words and Pictures. IEEE 2001 (From hereon in Barnard et al.), and further in view of Liu et al. (U.S. Patent No. 6,970,860 B1).

As to claim 37, Sigurjonsson et al. discloses a method comprising:

obtaining one stored images wherein the one or more stored images are stored within an image database, wherein the stored images are associated with at least one of a multiplicity of keywords (See page 3, paragraph 0030);

obtaining an image and comparing the image to the stored images to identify one or more similar images wherein image similarity is based on at least two factors, wherein one of the at least two factors is closeness in time of image acquisition (See Figure 9A);

producing at least two primary keywords based on the keywords associated with the similar images (See page 4, paragraphs 0042-0047);

determining at least two primary associations with the primary keywords (See page 3, paragraph 0037);

producing at least two secondary associations that identify at least two finer scale keywords wherein the secondary associations are based on the keyword and the primary associations wherein the database indicate that the finer scale keywords are keywords that are associated and occur when at least one of the primary keywords occurs (See page 3, paragraph 0037, and see page 4, paragraphs 0045-0046);

presenting the primary keywords, the finer scale keywords, and a new keyword selection to a user (See page 4, paragraph 0048);

obtaining one or more accepted keywords from the user wherein the accepted keywords comprise any one of or combination of primary keywords, the finer scale keywords, and one or more new keywords entered via the new keyword selection (See page 4, paragraphs 0049-0050);  
and

storing the image within the image database and in association with the accepted keywords (See page 3, paragraph 0038); and

updating the keyword wherein the keywords further comprise the accepted keywords (See page 4, paragraph 0048).

Sigurjonsson et al. does not explicitly teach the association of tags to be statistical as claimed to be wherein a multitude of keyword statistics are stored in a database statistics module, and wherein the keyword statistics indicate a probability that one of the keywords is associated with the one of the stored images whenever another one of the keywords is associated with the same stored image; likelihoods of keywords; and updating the keyword statistics. Sigurjonsson et al. teaches multiple tags (keywords) associated with an image and with each other (See page 4, paragraph 0047); and updating the keyword database (See page 4, paragraph 0048).

Barnard et al. teaches wherein a multitude of keyword statistics are stored in a database statistics module, and wherein the keyword statistics indicate a probability that one of the keywords is associated with the one of the stored images whenever another one of the keywords is associated with the same stored image (See page 412, column 2); and

likelihoods of keywords (See page 413);

updating the keyword statistics (See page 414, column 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Sigurjonsson et al. with the teachings of Barnard et al. to include association of multiple keywords in the same category (i.e. primary scale, finer scale) using statistics and likelihood of occurrence as it allows for faster automated classification of images for better search as taught in Barnard et al. page 408, column 1.

The combination of Sigurjonsson et al. with Barnard et al. although teaches associating keyword with images, does not explicitly teach wherein another one of the at least two factors is based on the image contents as determined by a content based image retrieval module, and wherein no keywords are currently associated with the image.

Liu et al. teaches wherein another one of the at least two factors is based on the image contents as determined by a content based image retrieval module, and wherein no keywords are currently associated with the image (See Liu et al. column 6, lines 11-18, and see Liu et al. column 6, lines 30-36, and Liu et al. column 6, lines 61-65).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Sigurjonsson et al. as defied with the teachings of Liu et al. to include wherein another one of the at least two factors is based on the image contents as determined by a content based image retrieval module, and wherein no keywords are currently associated with the image because for more accurate annotations of images (See Liu et al. column 1, lines 37-45).

### ***Response to Arguments***

5. Applicant's arguments filed on October 9, 2007 have been fully considered but they are not persuasive.

Applicant's arguments on page 6, and bottom of page 9 that "Sigurjonsson et al. teaches hierarchical tree which can only be traversed bottom to top while the opposite can't hold thus

does not teach or suggest the claimed invention of bi-directional associated probability“ is not found to be persuasive.

It appears that in contrast to Applicant's remarks, Applicant's specification what is defined as "primary keywords" and "finer scale" keywords are in fact "root category heading" and "sub-category entities" (see Published version paragraph 0033) thus would not follow applicant's rational and argument that frequency of occurrence and probability of association would need to be bi-directional. It's in fact opposing to the specification which explicitly state that the probability is history of no. of occurrence of each keyword within a specified category (see Published version paragraphs 0023-0024). The claim language itself also is in conflict of paragraph 0025 where it is explicitly stated that "Primary image category" and "finer scale keywords" NOT both being keywords and NOT both having multiple probabilities. In fact, no where in the specification does it specify the number of associations nor the number of keywords attached to any image. What appears to be calculated is a primary category and the frequency of occurrence of keywords within that category thus making it a high probability of being associated. Also in contrast to Applicant's arguments, CBIR is the only initial contributor to the image similarity when a new image is first loaded in the system as taught in specification published version paragraph 0029, database statistic and learning algorithm will then take effect after those similar images were shown to the user; thus significantly different from what is being claimed and argued. In fact, the applicant's specification parallel the prior art combination of Sigurjonsson et al. and Barnard et al. cited by the Examiner in that hieratical linked keywords are formed and statistics are calculated separated by CBIR and layered on top of the hierarchal structure accordingly to query retrieval feedback statistic.

Claim 37 language of "producing at least two primary keywords based on the keywords associated with the similar images; determining at least two primary associations with the primary keywords; producing at least two secondary associations that identify at least two finer scale keywords wherein the secondary associations are based on the keyword and the primary associations" has no requirement, support, nor description in the specification.

What is essential to Applicant's invention and missing from the claims is the concept of high-hit ratio whereby the calculated statistics are based on as taught in paragraph 0017.

In response to Applicant's argument that "there examiner has not offered a motivation to combine and did not follow KSR rational to provide evidence to suggest the combination of references teach the functionality claimed" is not deemed persuasive.

The Examiner has properly provided a motivation from teachings in the secondary reference. Barnard et al. background teaches various problems dealing with current image classification and retrieval systems including ones similar to Sigurjonsson et al.'s, while the Examiner opted to cite page 408, column 1 to highlight Barnard et al.'s motivation to improve prior art systems by "integrating statistical semantics learned based on queries" instead of waiting for associative assignment of tags thus an improvement to Sigurjonsson et al.'s tagging by association only system.

The Supreme court KSR decision (reasoning) is meant to be given as examples of possible ways of combining references and NOT as a test for references to meet each provision in order to be combinable. In this case, the Examiner provided motivation in the secondary reference and emphasizes following the Supreme court's reasoning, to one of ordinary skill in the



art, the combination of Sigurjonsson et al. and Barnard et al. cited is certainly obvious to try to combine the semantic associations relative to images of Sigurjonsson et al. with content based image retrieval techniques holding statistical image keyword calculations of Barnard et al.. Hierarchical keywords assignment and linkage as taught by Sigurjonsson et al. is clearly found in Applicant's specification, and statistically calculation for image similarity used in content retrieval systems as taught by Barnard et al. is too found in Applicant's specification.

Note: although a new rejection is presented to advance prosecution. Applicant's argument that CBIR is well known in the art contradicts the novelty described by the application's own disclosure paragraph 0024 since it is clearly stated that Applicant's CBIR is not your conventional system. Furthermore, Barnard et al. clearly teaches content based image retrieval. Thus the combined references do in fact teach CBIR

6. Although the Examiner completely disagrees with applicant's argument and specifically raises the issue that they have no merits in light of the specification, the Examiner has opted to introduce the Liu et al. (U.S. Patent No. 6,970,860 B1) reference to show exact teachings of the claimed invention and thus expedite prosecution.

#### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Caid et al. (U.S. Patent No. 6,760,714 B1) teaches co-occurrence of each meta descriptor to another in a class of images.

Li et al. (U.S. Patent No. 6,175,829 B1) teaches providing user with alternative terms to be used in annotating images based on co-occurrence values in a database.

Liu et al. (U.S. Patent No. 6,970,860 B1) teaches CBIR and text associations.

De Bonet (U.S. Patent No. 5,819,288) teaches statistically based image group descriptor.

Jain et al. (U.S. Patent No. 5,911,139) teaches image vector database calculations.

Vaithilingam et al. (U.S. Patent No. 6,411,724 B1) teaches using meta descriptors in query by example image retrieval.

David et al. (U.S. Patent No. 7,010,144 B1) teaches associating data with images in a database.


Thomas et al. (U.S. Patent No. 7,043,094 B2) teaches semantic feature accessibility in a database.

For complete list of relevant art, see PTO form 892.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Neveen Abel-Jalil whose telephone number is 571-272-4074. The examiner can normally be reached on 8:30AM-5:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christian Chace can be reached on 571-272-4190. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Neeven Abel-Jalil  
Primary Examiner  
January 1, 2007